

5-4**Practice****Dividing Polynomials**

Write a polynomial function in standard form with the given zeros.

13. $x = -1, 3, 4$

14. $x = 1, 1, 2$

15. $x = -3, 0, 0, 5$

16. $x = 4, 2, -3, 0$

17. $x = -1, 5, -2$

18. $x = -6, 0$

Divide using synthetic division.

11. $(x^3 - 8x^2 + 17x - 10) \div (x - 5)$

12. $(x^3 + 5x^2 - x - 9) \div (x + 2)$

13. $(-2x^3 + 15x^2 - 22x - 15) \div (x - 3)$

14. $(x^3 + 7x^2 + 15x + 9) \div (x + 1)$

15. $(x^3 + 2x^2 + 5x + 12) \div (x + 3)$

16. $(x^3 - 5x^2 - 7x + 25) \div (x - 5)$

17. $(x^4 - x^3 + x^2 - x + 1) \div (x - 1)$

18. $(2x^4 + 7x^3 - 11x^2 + 21x + 5) \div (x + 5)$

19. $(x^4 - 5x^3 + 5x^2 + 7x - 12) \div (x - 4)$

20. $(2x^4 + 23x^3 + 60x^2 - 125x - 500) \div (x + 4)$

Determine whether each binomial is a factor of $x^3 + 3x^2 - 10x - 24$.

7. $x + 4$

8. $x - 3$

9. $x + 6$

10. $x + 2$

Use synthetic division and the given factor to completely factor each polynomial function.

21. $y = x^3 + 3x^2 - 13x - 15; (x + 5)$

22. $y = x^3 - 3x^2 - 10x + 24; (x - 2)$

23. $y = x^3 + x^2 - 10x + 8; (x - 1)$

24. $y = x^3 + 4x^2 - 9x - 36; (x + 3)$